

WHAT IS CLAIMED IS:

1. An article for repairing turbine nozzle segments each having an airfoil between inner and outer platforms with a trailing edge portion of the airfoil removed leaving intermediate and leading edge portions of the airfoil between the platforms comprising:

a trailing edge coupon having pressure and suction side wall portions;

a plurality of film cooling holes generally radially spaced one from the other along a pressure side wall portion of the coupon;

said coupon including a trailing edge having a plurality of radially spaced openings and

a plurality of radially spaced ribs extending between opposite pressure and suction sides of the coupon, edges of the pressure and suction side wall portions being chamfered for welding to pressure and suction side wall portions of the intermediate portion of the airfoil.

2. An article according to claim 1 wherein the holes are generally cylindrical and flared by tapered portions of the pressure side wall portion of the coupon for distributing air substantially from the holes over downstream surfaces of the pressure side wall portion enabling film cooling of substantially the entirety of the trailing edge portion of the coupon downstream of the holes.

3. An article according to claim 1 wherein the number of the openings exceed the number of the film cooling holes by a factor of at least two.

4. A repaired turbine nozzle comprising:

leading edge and intermediate airfoil sections and inner and outer platforms forming remaining portions of a nozzle segment having a removed damaged trailing edge section;

a trailing edge coupon having a trailing edge, pressure and suction side wall portions, a plurality of film cooling holes generally radially spaced one from the other along the pressure side wall portion of the coupon, a plurality of radially spaced openings along the trailing edge, and a plurality of radially spaced ribs extending between opposite pressure and suction sides of the airfoil,

welds along opposite pressure and suction side edges of the remaining section and respective pressure and suction side edges of the trailing edge coupon whereby the remaining section and the coupon form a complete airfoil between the inner and outer platforms.

5. A repaired nozzle according to claim 4 wherein the number of openings exceeds the number of holes by a factor of at least two.

6. A repaired nozzle according to claim 4 wherein the holes are generally cylindrical and flared by tapered portions of the pressure side wall portion of the coupon

for distributing air substantially from the holes over downstream surfaces of the pressure side wall portion enabling film cooling of substantially the entirety of the trailing edge portion of the coupon downstream of the holes.

7. A method of repairing an airfoil of a turbine nozzle segment comprising the steps of:

(a) removing a damaged trailing edge portion of the airfoil leaving a remaining airfoil section including leading edge and intermediate sections;

(b) providing a trailing edge coupon having pressure and suction side wall portions, a plurality of film cooling holes generally radially spaced one from the other along a pressure side wall portion of the coupon and a plurality of radially spaced openings, and a plurality of radially spaced ribs extending between opposite pressure and suction sides of the airfoil; and

(c) welding along opposite pressure and suction sides of each the remaining airfoil section and the coupon respectively to secure the coupon to the remaining airfoil section.

8. A method according to claim 6 including welding opposite radial edges of the coupon to inner and outer platforms.

9. A method according to claim 6 including forming a fillet at the juncture of the opposite radial edges of

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the coupon and the inner and outer platforms respectively.

10. A method according to claim 6 wherein step (b) includes providing a trailing edge coupon having the number of the openings exceeding the number of the holes by a factor of at least two.